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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/530,008	04/24/2000	YASUSHI KANEKO	01165.0781	7523

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EXAMINER
NGUYEN, HOAN C

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 10/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/530,008	KANEKO ET AL.	
	Examiner	Art Unit	
	HOAN C. NGUYEN	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12 and 13* is/are allowed.

6)☒ Claim(s) *1,2,4,6 and 9-11* is/are rejected.

7)☒ Claim(s) *3, 5, and 7-8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature "a preferential view direction is set to any one direction of the hands of a clock (?) showing two-thirty, four-thirty, seven-thirty or ten-thirty" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants need to clarify the feature "a preferential view direction is set to any one direction of the hands of a clock (?) showing two-thirty, four-thirty, seven-thirty or ten-thirty (of what)."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2, 4 and 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigeki et al. (JP03294821) submitted by applicant in IDS and PCT report.

In regard to claims 1 and 2, Shigeki et al. teach (Figs 1 and 2) a liquid crystal display apparatus comprising

- a first substrate having a first transparent electrode
- a second substrate having a second transparent electrode,
- liquid crystal devices holding a nematic liquid crystal layer which is twist-oriented by an STN-twist angle between the first and second substrates;
- a first polarization board (6) provided for an outside of the first substrate;
- a twisted phase difference board (3) provided for the outside of the second substrate and having liquid crystal polymer layers;
- a second polarization board (2) provided for the outside of the twisted phase difference board;

characterized in that,

- the direction of the twist angle of molecule orientation 14 of the twisted phase difference board (3) is reverse to the direction (in opposite direction) of the twisted orientation 13 of the liquid crystal molecule of the liquid crystal devices,

- the twist angle of the twisted phase difference board about 200° with heat treatment for the manufacture (applicant example 3, Table 3). The twist angle of the liquid crystal devices about 230°, which is in a range of 180°-270° according to claim 2. Therefore, the twist angle of the twisted phase difference board is smaller than the twist angle of the liquid crystal devices by 30°, which is in a range of 10° to 40°.

In regard to claim 4, Shigeki et al. teach (Figs 1 and 2) a liquid crystal display apparatus, wherein

- a retardation Δnd_1 obtained by product of a double refractive index Δn_1 of the nematic liquid crystal layer and a thickness d_1 of the liquid crystal layer, the retardation Δnd_1 is 0.87μm, which lies in the range of 0.7 to 0.9 μm,
- a retardation Δnd_2 obtained by product of the double refractive index Δn_2 of the liquid crystal polymer layer and the thickness d_2 of the liquid crystal polymer layer, the retardation Δnd_2 is 0.7 μm (Table 3, application example 6, line 6 col. 4)
- the difference $\Delta nd_1 - \Delta nd_2 = 0.17$ that lies in the range of 0.1 to 0.3 μm.

In regard to claim 9, Shigeki et al. teach (Figs 1 and 2) a liquid crystal display apparatus, wherein the liquid crystal polymer layer of the twisted phase difference board has a temperature-compensating characteristic in a predetermined temperature range shown in Table 3.

In regard to claim 10, Shigeki et al. teach (Figs 1 and 2) a liquid crystal display apparatus, wherein the liquid crystal polymer layer has a temperature-compensating characteristic in which the retardation ($\Delta nd_2 = 0.7\mu m$) of the liquid crystal polymer layer is always smaller than the retardation ($\Delta nd_2 = 0.87\mu m$) of the nematic liquid crystal layer in a predetermined temperature range (Table 3, application example 6, line 6 col. 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeki et al. (JP03294821).

It is conventional that a liquid crystal display apparatus is working in condition of room temperature about 25-30 ^{O}C, which is lies in the predetermined temperature range of 20-80 °C.

Allowable Subject Matter

3. Claims 3, 5, 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The claims 3 and 5 are allowable since there is no prior art teaches a combination of:

- the twist angle of the twisted phase difference board smaller than the twist angle of the liquid crystal devices by 30° in a range of 10° to 40°.
- an angle between the liquid crystal molecule-oriented direction of the alignment film (23a) of the second substrate and the molecule-oriented direction of a lower polymer (32b) of the liquid crystal polymer layer lies in the range of 80° to 90°;
- an angle between an absorption axis of the first polarization board (1) and the liquid crystal molecule-oriented direction of the alignment film (23b) of the first substrate side lies in the range of 50° to 60°;
- an angle between the absorption axis of the second polarization board (4) and the molecule oriented direction of an upper polymer (32a) of the liquid crystal polymer lies in the range of 30° to 40°.

Claims 7 and 8 are allowable since they depend on the allowable claims.

4. Claims 12 and 13 are allowed. The following is an examiner's statement of reasons for allowance:

- Claim 12 is allowed with the same reasons above for claim 3 and 5.
- Claim 13 is allowed since there is no prior art teaches the combination of the claim subjects from a-e, specially c and d..

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Van De Witte et al. (US6437843B1) disclose a Double cell liquid crystal with optical axis of retardation film 30 parallel to an optical axis of the analyzer 5.

Nakamura (US5793455A) discloses (Fig.8) a compensator with a substrate 81, an orientation film 82 over substrate, and a discotic liquid crystal 83 over the orientation film.

Ito et al. (US5583679A) disclose (Figs. 10-11) a liquid crystalline optical film, compensating film for liquid crystal display comprising the liquid crystalline optical film with twisted angle of –240°, and liquid crystal with twisted angle of 240°, an angle about -45° of an absorption axis of upper polarizer and orientation direction of compensating film on the side where the compensating film and the upper polarizer in contact with each other; and angle about 0° of orientation direction of liquid crystal in the upper substrate of liquid crystal cell and orientation direction of compensating film on side where the compensating film and the liquid crystal cell in contact with each other; an

angle about 45° of absorption axis of the lower polarizer and orientation direction of liquid crystal in the lower substrate of the liquid crystal cell.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, SIKES L WILLIAM can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8178 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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September 30, 2002

TOAN TON
PRIMARY EXAMINER